natureplus e.V.

Guideline 0113

Cork Insulation Boards

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for the awardance of the eco-label

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Introduction

The International Association for Sustainable Building and Living - natureplus association - pursues the goal of promoting sustainable building products and increasing their popularity and use. To this end, sustainability criteria for building products are defined and verified as part of regular conformity assessments at the applicant's premises.

Three comprehensive sustainability definitions are created to achieve a holistic understanding of quality.

CLIMATE PROTECTION

The climate crisis is worsening, and the consequences are becoming increasingly visible. The construction sector is one of the largest emitters, accounting for around 40% [1] of global greenhouse gas emissions. Energy-intensive manufacturing processes, long transport routes and short renovation cycles are often still characteristic of the status quo.

The natureplus certification requires manufacturers to meet limit values on CO2 emissions and primary energy consumption.

[1] UNEP, 2020, 2020 Global Status Report for Buildings and Construction, p. 4.

HEALTHY LIVING

In Western societies, we spend about 90% [2] of our lives in buildings. Pollutants emitted by building materials can accumulate in the indoor air we breathe daily, posing unnecessary health risks to occupants. The accumulation of chemical pollutants from building materials in household dust is also a cause for concern.

The natureplus certification ensures that hazardous input materials are avoided or used in quantities that are harmless to health. Emissions from building products are strictly regulated and regularly monitored.

[2] Umweltbundesamt, o. D., Ausschuss für Innenraumrichtwerte (AIR)

CONSERVATION OF RESOURCES

All construction activities have an impact on nature and the environment, with the consumption of finite resources remaining unacceptably high. The production of building materials in Germany consumes about 60% of our resources, and as much as 90% if only mineral raw materials are considered. At the same time, the construction sector is responsible for 50% of the waste generated. [3]

The natureplus certification sets out requirements for increased transparency in the supply chain, respect for human rights and the environment, and the responsible use of resources throughout the life cycle of a building product.
Sustainable materials should also be durable, reusable, or recyclable.

[3] VDI ZRE, 2019, Ressourceneffizienz im Bauwesen – Von der Planung bis zum Bauwerk, p. 5.

Notes on this product guideline:

The eco-label, the certification programme including all associated documents is the property of the non-profit natureplus® environmental organisation. The Association and its specially appointed Criteria Commission are therefore responsible for the further development of the requirements.

The label is awarded by the European cooperative natureplus Institute SCE mbH.

In the event of textual discrepancies between different language versions of a guideline, the Criteria Commission's Task Force will determine the valid wording. The affected language versions will be amended to reflect the valid wording.

In the event of conflict between the basic guidelines (50XX) and this product guideline, the product award guideline shall prevail.

For questions, criticism and suggestions, please contact:

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1 Application Areas

The following criteria contain the requirements for the awardance of the natureplus eco-label for cork insulation boards according to EN 13170 for use as thermal insulation. The award guideline is to be applied exclusively to those products mentioned in this guideline.

2 Award Criteria

The prerequisite for a product to be awarded the natureplus® quality label in accordance with these guidelines is compliance with the following award guidelines:

- GL5001 Chemicals Directive
- GL5002 Origin of Wood and Wood Production
- GL5004 Transparency and Social Responsibility
- GL5010 Low-emission building products
- GL5020 Climate compatibility and energy efficiency

2.1 Functional Suitability

The manufacturer shall state the construction/building physics properties of the product and shall indicate in this context which standards and test guidelines/ methods were used to assess these properties and, if these standards contain requirements for the products, whether these are met by the products.

The product must fulfil the requirements for functional suitability by having a national or European technical approval or by following a harmonised standard.

The applicant shall meet this requirement by submitting one of the following documents:

- a valid European Technical Assessment (ETA)
- a declaration of performance and conformity according to a European harmonised technical specification (e.g. standard)

- a valid national technical approval (e.g. in Germany a general technical approval – abZ, in Austria a technical approval – BTZ)
- a national declaration of performance and conformity to a national technical specification (e.g. standard)

The thermal nominal value at 10°C and u_{dry} as per EN ISO 10456 or a comparable standard must comply with the following requirements:

Application Area	$\lambda_{90,90}$ [W/mK]
Insulation not subject to pressure load (W, WL, WV)	≤ 0,045
Insulation subject to pressure load (WD)	≤ 0,065
Insulation functioning as plaster base (WD-PT	≤ 0,050

The fire behaviour of the product must correspond at least to building material class E according to EN 13501-1.

In case the product is supplied to countries in which other requirements apply as the ones in the standards mentioned so far, these requirements must be met as well. The applicant states the countries where the product is distributed and provides official certification by approved testing institutions to confirm compliance with the requirements. The product must not, however, fall short of the requirements established by natureplus.

The product must not be treated with compounds which prevent or strongly reduce its ability for water uptake or water release.

The product must be resistant to mould growth under the conditions of a professional installation. Evidence has to be provided in form of a rating of mould fungus growth as category 0 (no growth visible with microscopic analysis) according to EN ISO 846.

The product must fulfil the requirements of EN 13170: The product must comply with the classes L2 (Length), W2 (Width) and T1 and/or T2 (Thickness). Proof must be provided of the squareness, evenness, dimensional stability, bending strength, fire behaviour, moisture content and apparent density. Cork insulation boards used in external thermal insulation composite systems must also comply with the classes L1 (Length), W1 (Width) and T1 (Thickness). The manufacturer must provide proof based upon applicable inspections and documentary evidence.

2.2 Composition, Forbidden Substances, Substance Restrictions

The product must be made to 100% from renewable raw materials. No other binding agents may be used in the production process other than the inherent, natural binding agents contained within the cork itself.

The use and addition of biozides is not permitted.

Flame retardants are prohibited.

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

A certificate of origin must be provided for cork as a raw material.

The manufacturer has to state and to place his suppliers under the obligation that no synthetic plant protecting product with agents included on the list of banned pesticides of the chemicals directive GL-5001 are used during the cultivation of cork oak forests, harvest, storage or transport of cork. Compounds based on arsenic or mercury must not be employed. Implementing the obligation and the supplier's declarations are a part of the certification procedures.

The use of biocides during the cultivation of cork oaks is not permitted. Exceptions to this rule mayinclude treatments to avoid severe economic losses. In such cases the alternative method of pest control chosen should represent the lowest possible risk factor available. The sustainable harvesting of the raw materials must be confirmed.

This applies in particular to the following:

- The first peeling of the cork bark may only take place when the tree is at least 25 years old and the trunk circumference (including the bark layer) is a minimum of 60 cm at a height of1,2 m.
- The peeling of branches may only take place when the diameter above the phellogen (the cell developing layer) is no less than 15 cm or the circumference is no less than 47 cm.
- The second and all subsequent peelings of the cork bark may only take place after a period of 9 years has elapsed between individual peelings.
- The cropping of branches must not cause any damage to the trees.
- The peeling of the cork bark must not cause any lasting reductions in the yield levels.

Treatments with halogen compounds (e.g. washing with hypochlorite) are not permitted.

In production facilities outside the European Union, the applicant must demonstrate that the production facility has a hazardous substance management system for the protection of employees that meets the relevant European standards and legal regulations. This must also include information on the release of dust and compliance with the general dust limit values. Where technical or organizational measures cannot ensure compliance with general dust limit values or other workplace limit values, suitable personal protective equipment must be provided. Efforts must be made to minimize avoidable exposure of workers.

It must be assured that the baking temperature does not exceed 350 - 380 °C via relevant quality control measures.

Freight transport and especially road transport has manifold negative effects upon the environment: noise, dust, road construction, energy consumption, emissions (e.g. 0.014 kg CO2-equivalent for 1 km Jumbo-truck-transport of 1 m3 cork insulation boards). Due to the fact that the distances between the production site and the installation sites of the cork insulation boards are usually very large, the licensees are called upon to minimise the negative environmental effects of transportation.

2.4 Usage

The product must not exhibit any unpleasant or foreign smells or odours. The emissions during use have to be in compliance with the limit values according to section 3.

Emissions must not exceed the natureplus limits according to section 3 during the use phase. (see section 3 and RL5010)

2.5 Reuse, recycling and disposal

The product must be suitable for safe disposal in a waste incineration facility.

2.6 Ecological Parameters

All products in this product group must be manufactured in such a way that the environmental parameters listed in RL5020 are complied with.

2.7 Public Declaration

A public declaration of ingredients[1] must be provided in the official language of the country in which the product is intended for sale. It must be freely accessible. Ingredients must be listed in descending order of weight. The following publicly accessible documentation paths are permitted:

- Product packaging
- Technical data sheet
- Sales brochures
- Website

Ingredients from preliminary products or preparations that remain in the final product with a content of >1 M% must also be included in the full declaration.

The following applies to the public declaration of ingredients:

- above 1 M% the name of the ingredient
- below 1 M% at least the functional name of the ingredient, the mass order is cancelled.

[1] Ingredients are substances and mixtures that remain in the final product. Reactants and ancillary input materials are included in the non-public full declaration submitted to the assessment body

Furthermore, there is an obligation to include the following information with the product or to make it available to the consumer or user in an appropriate manner (e.g. online):

- Instructions for use and safety instructions
- Storage and disposal instructions
- Batch numbers
- Country of production
- Country of origin of input materials > 20 M-% where there is a deviation from the country of production

For thermal insulation materials, the following product-specific information shall be provided to the consumer or user, as applicable.

- Labeling in accordance with the guidelines of the European Community (Communauté Européene, CE marking) or the respective building approval with an indication of the scope of validity
- Bulk density in kg/m³
- Nominal thermal insulation value λ_D according to EN ISO 10456 or equivalent standard
- Thermal insulation design value λ_R according to EN ISO 10456 or equivalent standard
- Type of application or areas of application according to DIN 4108, ÖNORM B 6000 or equivalent standard
- Fire behavior Euroclass according to EN 13501-1

2.8 Processing and Installation

The applicant must demonstrate whether low-dust working methods are available for processing the product. If this is the case, these procedures are to be recommended and suitably presented within the processing guidelines. Compliance with the general dust limit value must be ensured by low-dust working methods. If this is not possible, the wearing of personal protective equipment must be prescribed.

2.9 Packaging

The packaging used must be recyclable.

The manufacturer must belong to a recycling system, if one exists for the corresponding material.

Paper and cardboard packaging must be made from recycled paper. Alternatively, paper from sources as per GL5002 is also permitted.

Plastic packaging must be made from polyolefins. PET, polystyrene or polycarbonates are allowed exceptionally in reasonablecases.

PVC packaging is generally not permitted.

Packaging must not contain biocides.

Once awarded, the natureplus label together with the license number must be printed on the packaging or made visible to the consumer in another suitable place.

3 LaboratoryTests

The products are subject to laboratory analyses to test for harmful substances and undesirable ancillary ingredients. A representative sample is collected during the production audit. If the sample collection cannot be conducted by a natureplus examiner, an independent person designated by natureplus can collect the sample. For products with different sizes but the same composition, a single sample is sufficient.

3.1 Volatile Organic Compounds VOC / TVOC

To check the emission of VOC and to determine the TVOC and TSVOC, an emission chamber test is carried out with the product. Measurements are usually performed after 3 and 28 days. The test-chamber examination is performed according to the current version of natureplus guideline 5010. The product must comply with the limit values specified in guideline 5010.

3.2 Element Analyses

The product is subject to an element analysis to determine the content of harmful elements and to check for undesirable contaminations. The measurements have to be in compliance with the limit values. The analysis is performed according to the current version of the test method TM-02 metals.

An eluate analysis is mandatory if the required values of the content analysis are not met.

3.3 Other Analyses

Element	Limit value [mg/kg]
Arsenic (As)	≤ 2
Cadmium (Cd)	≤ 0,5
Cobalt (Co)	≤ 5
Chrom (Cr)	≤ 10
Copper (Cu)	≤ 50
Mercury (Hg)	≤ 0,2
Nickel (Ni)	≤ 10
Lead (Pb)	≤ 5
Antimon (Sb) (1)	≤ 2
Tin (Sn)	≤ 10
Thallium (Tl)	≤ 1
Zink (Zn)	≤ 500

(1) Bei der Verwendung von Polyesterstützfasern ist der Grenzwert für Antimon nicht anwendbar, da Antimon bei der Polyesterherstellung als Katalysator eingesetzt wird.

Halogenic organic compounds

Test parameters	**Limit values**	**Unit**	**Method**
Halogenic organic compounds: AOX/EOX	≤ 1	mg/kg	TM-03 Halo

Odour

Test parameters	Limit values	Unit	Method
Odour	≤ 3	Odour intensity	TM-04 Odour

Pesticides

To be examined only if necessary:

Test parameters	Limit values	Unit	Method
Total pesticides	≤ 1	mg/kg	TM-05 Pesticides
Individual pesticides Organochlorine pesticides: Aldrin, Chlordane, DDD, DDE, DDT, Dichlofluanid, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Lindane, Pentachlorophenol Organophosphate pesticides: Dimethoat, Fenthion, Parathion-methyl, Parathion-ethyl, Phosalon Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin Other: Benomyl, Carbendazim, Prochloraz	≤ 0,1	mg/kg	TM-05 Pesticides

Polycyclic aromatic hydrocarbons (PAH)

Nur im Bedarfsfall zu untersuchen:

Test parameters	Limit values	Unit	Method
Polycyclic aromatic hydrocarbons	≤ 10	mg/kg	HPLC/GC-MS

4 Appendix

Test methods

TM-01 VOC : Volatile Organic Compounds VOC/TVOC, formaldehyde, acetaldehyde and TSVOC: DIN EN ISO 16000 series expanded by the natureplus implementation rules in guideline 5010.

TM-02 Metals: ICP-MS measurements according to DIN EN ISO 17294-2, supplemented with the natureplus implementation rules and a sample preparation adjusted to the issue analysed.

TM-03 Halo: Halogenic organic compounds after combustion, determined by microcoulometry according to the natureplus implementation rules "AOX/EOX".

TM-04 Odour: natureplus implementation rules "odour intensity", 6-degree grading scale 3 days after loading the test chamber following VDA 270:2018.

TM-05 Pesticides: DFG S 19 extended by natureplus implementing regulations

TM-08 Foreign fibres and foreign substances: scanning electron microscopy SEM

TM-09 Monomeric isocyanates: 24h after test chamber loading

TM-10 PAH: HPLC / GC-MS, sum according to EPA